

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
INTERIM
AGRICHEMICAL MIXING FACILITY
(No.)**

CODE 702

DEFINITION

An Agrichemical Mixing Facility (AMF) is a structure designed to provide an area for controlled mixing and containment of agrichemicals.

Measures will be designed to prevent runoff from adjacent areas resulting from a 25-year 24-hour storm from entering the facility.

PURPOSES

To protect the environment by containing, collecting and storing agrichemicals during mixing, loading, unloading, and rinsing operations.

Location: The AMF shall be located outside the 25-year flood plain and wetland areas and a minimum of 150 feet from private wells and surface water bodies and 500 feet from wells used for public water supply. Facilities shall be located at least 2 feet above the seasonally high water table. In areas with fractured bedrock, the bottom of the facility shall be a minimum of 2 feet above the bedrock. Where practicable the AMF should be located outside of Drinking Water Protection Areas.

CONDITIONS WHERE PRACTICE APPLIES

This standard applies to on-farm sites where agrichemicals are mixed and loaded and/or where equipment is cleaned.

Components: An AMF system shall include those components necessary to contain rinsate, accidental spills and leaks during use. Components of a complete facility must include, but are not limited, to the following:

CRITERIA

General: All federal, state, and local laws, rules, ordinances and regulations governing agrichemical mixing, pollution abatement, health and safety shall be followed. Consult with Idaho State Department of Agriculture prior to designing an AMF to ensure compliance and consistency with the latest State and Federal laws and rules.

1. A contained chemical mixing and loading pad;
2. a. An adequate water supply for mixing chemicals, and for rinsing tanks and containers including water supply pump, pipeline, hoses, back-flow prevention devices, and other hardware as needed;
- b. Potable water available for emergency health and safety needs;
3. Tanks for storage of rinsate and potentially contaminated runoff.

Producers/Applicators are responsible for securing the necessary permits to install the required facilities and for properly managing the facilities.

A collection sump and sump pump are needed when the storage tanks can not be filled/emptied by gravity flow.

Capacity of AMF System: On roofed/covered facilities the combined capacity of the pad and sump shall be sized to contain 125 percent of the volume of the largest chemical or spray tank planned for use on the pad.

On unroofed or partially roofed facilities the combined capacity of the pad, sump and storage tank shall be sized to contain the 25-year, 24-hour storm event runoff that falls on uncovered portions of the AMF plus the 125 percent of the volume of the largest chemical or spray tank.

Pad: The size of the pad used for the chemical mixing operation shall be the length and width of the largest application equipment plus a minimum of 2 feet. The booms may be folded in on sprayer equipment.

Pads may be constructed of aluminum, steel, reinforced concrete or other durable water tight materials designed to withstand the loading and operational conditions needed for the site, i.e., corrosiveness of agrichemicals, chemical compatibility and/or type of coatings.

Pads shall be designed with a slope from all areas toward the sump.

Concrete slabs will be designed to minimize cracking. Construction joints will be designed to transfer loading, have waterstops and shall be sealed at the surface. Ramps, rounded curbing, or other methods shall be designed to provide a smooth transition for entrances and exits. Concrete shall be placed on a minimum of a 4-inch

thick compacted, free draining granular subbase.

Piping: Piping shall be supported to prevent sagging. All piping shall be designed to provide monitoring either visually or by other means.

Sump: The sump shall be watertight and constructed of corrosion resistant material(s) and covered with a corrosion resistant grating. The sump and grating shall be designed to withstand the anticipated loads. Determine sump capacity based on the sump pump discharge rate specified.

Sump Pump: The sump pump shall be selected to provide the discharge rate at the head requirements of the site and the potential corrosive characteristics of the agrichemicals.

Storage Tank(s): All permanent storage tank(s) shall be above ground on the pad or on an adjacent contained pad and shall be constructed of corrosion resistant materials for the agrichemicals to be stored. An adjacent pad shall meet the requirements listed under "Pad" except minimum size can be limited to the area needed to collect potential spillage and leakage from the storage tank(s). An adequate number of tanks shall be designed to prevent mixing of incompatible agrichemicals. All tanks shall be secured to prevent unauthorized access. Storage tanks and appurtenant piping shall be designed to handle all operating pressures including static pressures, pressure from pumps or compressors and applicable structural loadings.

Roof: Roofs or other covers can be used to exclude storm water from collection/mixing facilities. Roofs may be removable covers where facilities are used intermittently in non-storm periods or permanently attached

roofs. Permanent roofs shall be designed for applicable snow and wind loads as specified in ASAE EP 288.5, Agricultural Building Snow and Wind Loads.

Materials. All materials used in the constructing mixing facilities shall have the strength, durability and workability required to meet the installation and operational conditions required for the site.

Reinforced concrete used in the facility shall be designed to equal or exceed the minimum requirements of ACI-318.

Metal structures shall be in accordance with the AISC “Specification for the Design, Fabrication and Erection of Structural Steel for Buildings”. Metal used in structures shall be coated with a protective material rated for the intended use.

Metals used for valves and fittings shall be compatible with metals used in the construction of containers.

Wooden structures shall be in accordance with the AITC “Timber Construction Manual”.

Water Supply: A reliable water supply shall be provided to the pad. A backflow prevention valve that complies with minimum State of Idaho and local requirements shall be installed on the clean waterline serving the facility. Provisions shall be included to allow winterizing of all pipelines. Use hoses, pipes, valves, connectors, etc, that are rated for use with the agrichemicals to be handled.

CONSIDERATIONS

Consider installing an emergency washing faucet and emergency eye-wash station. A drop shower is recommended.

Select a site that has not been used previously for chemical storage, mixing, loading or equipment rinsing.

To prevent cross contamination of agrichemicals, consider the need for isolating fertilizer storage tank(s) from storage tank(s) used for pesticide storage.

The selection of material(s) to be used in an AMF should take into account the following: required life of the facility, corrosiveness of the agrichemicals to be mixed and climatic conditions for the site.

Consider using a pump filled elevated clean water tank to provide gravity feed water to use with spray equipment. Provide an air gap or separation from the domestic water supply system.

Consider locating AMF’s outside the 100-year flood plain. Suitable flood proofing shall be provided for AMS’s located within the 100-year flood plain.

Consider the use of additives such as micro-silica or fiber to increase surface hardness of the concrete pad and to protect the concrete from chemical deterioration.

Locate the AMF downwind and downhill from sensitive areas such as houses, play areas, gardens, livestock housing, recreation areas and hydrologically sensitive areas, such as Drinking Water Protection Areas and areas of shallow soils or rock outcrops.

Locate the AMF as near as practicable to the agrichemical storage facility.

PLANS AND SPECIFICATIONS

Plans and specifications for constructing AMF's shall be prepared in accordance with the criteria contained in this standard and

shall describe the requirements for applying this practice.

The following statement shall appear on all construction drawings for AMF's
"Management of chemicals shall be the responsibility of the owner/operator and shall be in accordance with applicable federal, state and local regulations."

OPERATION AND MAINTENANCE

An operation and maintenance (O&M) plan shall be developed that is consistent with the purposes of this practice and shall address:

A set of general procedures that need to be followed prior, during and after any chemical mixing operation.

Operate and maintain an AMF so rinsate and water solution use can be optimized according to pesticide labels, using proper label applications for cropped lands.

Specific information about the operation including a list of chemicals, emergency telephone and other site-specific data shall be posted at the AMF.

Periodic inspection of all piping, pumps(s) and testing function of backflow prevention devices.

Repair of cracks in concrete and damaged coating on metal structures with suitable materials.

Safety and handling procedures in case of spills as well as training and inspection plans.

Agrichemicals collected in the facility(ies) shall be applied as intended or properly disposed.

REFERENCES

- NRCS, Reinforced Concrete Strength Design, TR 67
- American Concrete Institute (ACI) 318, Building Code Requirements for Reinforced Concrete
- American Society of Agricultural Engineers (ASAE) EP 288, Agricultural Building Snow and Wind Loads
- American Institute of Steel Construction (AISC), Manual of Steel Construction
- American Institute of Timber Construction (AITC), Timber Construction Manual
- Midwest Plan Service (MWPS)-37, Designing Facilities for Pesticide and Fertilizer Containment